

EXECUTIVE ORDER 12856

***Federal Compliance with Right-to-Know Laws and
Pollution Prevention Requirements***

1995 ANNUAL REPORT



U.S. Department of Energy
Office of Environment, Safety & Health

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Introduction

On August 3, 1993, President Clinton signed Executive Order 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*, "pledging the federal government to protect the environment by preventing pollution at the source." This Executive Order directs all federal agencies, including the Department of Energy (DOE), to comply with the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and the Pollution Prevention Act of 1990 (PPA).

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DOE has led the federal sector in TRI reporting by voluntarily committing to report TRI releases prior to the issuance of Executive Order 12856.
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DOE has had a longstanding commitment to implementing the principles contained in Executive Order 12856. DOE's contractor-operated facilities have been active in complying with EPCRA since its passage in 1986. The Department has provided guidance and training materials on the general requirements of EPCRA and specific guidance and training on Toxic Chemical Release Inventory (TRI) reporting. In fact, DOE has led the federal sector in TRI reporting by voluntarily committing to report TRI releases prior to the issuance of the Executive Order and has worked closely with the Environmental Protection Agency (EPA) during 1992 and 1993 on resolving issues of federal facility TRI reporting.

DOE also has been a leader in the development and implementation of pollution prevention programs and activities, including voluntary participation in EPA's 33/50 program. In 1988, 12 DOE facilities filed Form R reports with EPA as sites which used or stored chemicals to be reported under the TRI. Since then, DOE facilities have met, ahead of schedule, the Department's goal of a 50% reduction in TRI releases and transfers of seventeen priority chemicals covered by the EPA 33/50 program. In addition, facility-specific pollution prevention plans are required under DOE Order 5400.1, *General Environmental Protection Program*, and the Department has issued guidance to its facilities on the preparation of those plans. DOE has involved actively nearly all

departmental organizations in pollution prevention activities at the staff level through the Waste Reduction Steering Committee and at the senior management level through the Pollution Prevention Executive Board, chaired by the Deputy Secretary of Energy.

The DOE pollution prevention program mission is to minimize the generation and release of pollutants to the environment by implementing cost-effective pollution prevention technologies, practices, and policies with partners in government and industry. In a December 27, 1994 memorandum to the Department, the Secretary of Energy embraced "pollution prevention not only as a strategy to reduce waste generation but also as the preferred approach to protect the environment, reduce future risks and costs associated with managing wastes and pollutants, and improve energy efficiency." The policies and practices outlined in the DOE pollution prevention program are largely implemented in the field, with Headquarters serving an oversight and coordinating role. Success of the DOE pollution prevention program is dependent on each field operation becoming accountable for resources used, wastes and pollutants generated, and wastes recycled.

While DOE is fully committed to fulfilling the requirements of Executive Order 12856, the releases and transfers of TRI chemicals represent a fairly small portion of DOE's total waste generation. In fact, DOE's total 1993 contribution to the TRI represented only 0.1% of the reported national total. Therefore, many of the Department's pollution prevention efforts are focused on more significant forms of wastes, including hazardous, radioactive, and radioactive mixed wastes.

This report constitutes the Department's first annual progress report to the Administrator of the EPA as directed by Section 4-402 of Executive Order 12856.

E.O. 12856 Applicability

As stated in Section 2-202 of Executive Order 12856, DOE satisfies the definition of a federal agency as an Executive agency. DOE also satisfies the requirement in Section 1-102 of the Executive Order which pertains to owning or operating facilities. Therefore, the provisions of Executive Order 12856 are applicable to the Department and its sites.

Section 3-302 of the Executive Order requires "covered facilities" to develop pollution prevention plans no later than the end of 1995. For purposes of this section, DOE has defined a "covered facility" to be any DOE site which reports under EPCRA Section 313, TRI reporting. The Department has chosen this interpretation of "covered facilities" to focus planning efforts on the sites which must reduce their releases and transfers of toxic chemicals in order for DOE to reach its Department-wide reduction goals. For purposes of all other sections of the Executive Order, a "covered facility" is any facility which meets one or more of the reporting requirements of EPCRA Sections 302, 304, 311-312, and 313.

Further, Executive Order 12856 and EPA's interpretive guidance define pollution prevention to be "source reduction", as defined in the PPA, and other practices that reduce or eliminate the creation of pollutants through 1) increased efficiency in the use of raw materials, energy, water, or other natural resources or 2) protection of natural resources by conservation.

Within the Department, however, pollution prevention includes all aspects of source reduction and incorporates waste minimization by expanding beyond the EPA definition of pollution prevention to include recycling. The Department's interpretation of pollution prevention agrees with the February 1995 draft International Standards Organization (ISO) Document 14001.2, *Environmental Management Systems-Specifications with Guidance for Use*, which defines pollution prevention to be the "use of processes, practices, materials, products or energy that avoid or reduce the creation of pollution and waste" and specifically states that this includes recycling.

Pollution prevention can be applied to all DOE pollution-generating activities, including manufacturing and production operations; facility operations, maintenance, and transportation; laboratory research; research, development and demonstration; weapons dismantlement; decontamination and decommissioning; and legacy waste and contaminated site cleanup.

The Department takes no other exceptions in interpreting the applicability and definitions of Executive Order 12856. The Department understands that Executive Order 12856 in no way alters the EPCRA and PPA reporting obligations of DOE government-owned/contractor-operated facilities.

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*DOE's
interpretation of
pollution
prevention
agrees with the
draft ISO
14001.2
definition which
specifically
includes
recycling.*
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DOE Pollution Prevention

**Reduce
then recycle**

DOE Pollution Prevention Policy & Strategy

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The DOE pollution prevention strategy goes beyond the provisions of Executive Order 12856 by addressing other related environmental Executive Orders.
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In December 1994, the Department issued a written pollution prevention strategy as directed by Section 3-301 of Executive Order 12856. Appendix A of this report contains the full text of the DOE strategy. The strategy identifies departmental objectives, designates a senior manager responsible for the coordination of the Department's efforts in pollution prevention, and includes Secretary of Energy O'Leary's December 1993 pollution prevention policy statement committing DOE to pollution prevention. The DOE pollution prevention strategy goes beyond the provisions of Executive Order 12856 by addressing other related environmental Executive Orders.

The Department's commitment to pollution prevention through source reduction, where practicable, as the primary means of achieving and maintaining compliance with applicable federal, state, and local environmental requirements also is stated in the DOE pollution prevention strategy. Further, the DOE 1994 *Waste Minimization/Pollution Prevention Crosscut Plan* established a departmental vision of environmental management with a preference for source reduction and recycling over waste treatment, storage and disposal.

The Department's pollution prevention strategy, consistent with the provisions of Executive Order 12856, identifies the following departmental objectives:

- Effectively institutionalize the pollution prevention ethic through training and awareness in mission areas;
- Reduce the releases and off-site transfers to the environment;
- Incorporate pollution prevention policy into the acquisition process;
- Achieve emergency planning and community right-to-know reporting;
- Address other environmental quality issues and pollution prevention focus areas; and
- Develop, transition, and apply innovative pollution prevention technologies.

DOE Pollution Prevention Policy: *"DOE embraces pollution prevention as its strategy to reduce the generation of all waste streams and thus minimize the impact of departmental operations on the environment, as well as improving safety of operations and energy efficiencies. I expect the Department to continue the leadership shown by our voluntary compliance with EPCRA and our participation in the EPA's 33/50 program which focuses on near-term pollution prevention efforts of seventeen priority chemicals."*

"... Recognizing that pollution prevention is the Department's preferred approach to meeting its environmental responsibilities, I am directing that Cognizant Secretarial Officers, working in conjunction with the Pollution Prevention Executive Board, identify, plan and allocate funds for field implementation of waste minimization and pollution prevention activities during the departmental budget review process. This information will be used to provide an identified budget each year dedicated to pollution prevention activities." -- Secretary of Energy O'Leary

Toxic Chemical Reduction Goals & Baseline

The Department's 1994 *Waste Minimization/Pollution Prevention Crosscut Plan* commits DOE to the 50% reduction goal for releases of toxic chemicals to the environment and transfers of toxic chemicals for treatment and disposal across the DOE complex by December 31, 1999, as directed by Executive Order 12856. To assist in the Department-wide effort, the DOE site pollution prevention plans will address site-level goals for reducing their releases and transfers of listed toxic chemicals.

Further, Executive Order 12856 explicitly states that the baseline year for measuring progress toward the December 1999 goal shall be no later than the 1994 reporting year. Due to the Department's early commitment to toxic chemical release inventory (TRI) reporting and voluntary pollution prevention activities, DOE has seized a leadership opportunity by establishing 1993 as its baseline year for measurement, one year ahead of all other federal agencies, and one year ahead of the Executive Order requirement.

For the purpose of measurement, the Department's baseline is defined by the 23 DOE sites reporting 28 listed toxic chemicals on the 89 Form R reports filed with EPA for the 1993 reporting year.

The 1993 baseline is now fixed and will be changed only if a site submits revised Form R reports. Future measurement against the 1993 baseline will include all sites reporting listed toxic chemicals for each reporting year regardless of whether they reported in the baseline year.

Therefore, if a site which did not report in 1993 initiates reporting with the 1994 reporting year, that site's data will be included in the DOE total releases to the environment and transfers for treatment and disposal to be compared against the 1993 baseline. Likewise, the baseline will remain unchanged if a site which reported in the 1993 baseline ceases to report in 1994.

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The Department has taken a leadership opportunity by establishing 1993 as its baseline year, one year ahead of all other federal agencies.
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1993 TRI Reporting

DOE plans to reduce its releases and transfers of TRI chemicals 50%, from 4.68 million pounds in 1993 to 2.34 million pounds by 1999.

The 50% reduction goal specified in Executive Order 12856 applies only to the total releases of toxic chemicals to the environment and transfers of toxic chemicals for treatment and disposal. It does not include off-site transfers for recycling and energy recovery. Thus, only the releases and off-site transfers reported under Sections 8.1 and 8.7 of the annual TRI Form R report are used in measuring progress toward the 1999 reduction goal. Section 8.1 (quantity released) of the Form R report is the amount of toxic chemicals directly discharged to air, water, land, and injected underground at the site. Section 8.1 also includes amounts sent off-site for disposal. Section 8.7 (quantity treated off-site) of the Form R report is the amount of toxic chemicals sent off-site to be treated, including quantities sent to publicly owned treatment works.

As shown in Tables 1 and 2, the DOE 1993 baseline total of releases of toxic chemicals to the environment and transfers of toxic chemicals for treatment and disposal only, reported in Sections 8.1 and 8.7 of the Form R report, is 4,677,504 pounds. This DOE total represents 0.1% of the nation-wide total of all facilities reporting to the TRI in 1993. To reach the 50% percent reduction goal by December 31, 1999, DOE must achieve an overall 2,338,752 pound reduction in the reported releases of toxic chemicals to the environment and transfers of toxic chemicals for treatment and disposal.

To achieve the 1999 reduction goal, the Department needs to focus efforts on the specific chemicals and sites which contributed the largest amounts to the 1993 baseline. The largest chemical contributors to the baseline are: methanol, sulfuric acid, dichlorotetrafluoroethane (CFC-114), hydrochloric acid, nitric acid and ammonia. Significantly, the 3,665,991 pounds of methanol released and transferred for treatment and disposal represents 78% of all the toxic chemicals reported by the

Department for the 1993 reporting year.

Table 2 identifies the DOE sites which contributed the most to the 1993 baseline. Notably, the 3,782,920 pounds of ten listed chemicals reported by the Naval Petroleum Reserve #1 represents 81% of the 1993 DOE-wide total. Excluding Naval Petroleum Reserve #1, the 1993 DOE total releases and transfers for treatment and disposal is 894,584 pounds, of which the Idaho National Engineering Laboratory accounts for 41%, the Engineering Technology and Engineering Center and the Portsmouth Gaseous Diffusion Plant combined account for 30%, and the remaining 19 DOE "covered facilities" account for 29%.

To assist with TRI reporting, DOE issued the following two documents to its sites in 1993: *Toxic Chemical Release Inventory & 33/50 Pollution Prevention Program Interim Guidance* and *DOE Toxic Chemical Release Inventory "Qs & As."* DOE Headquarters also held six workshops in 1993 and 1994 to instruct site personnel on how to complete the Form R report.

Figure 1. DOE's December 31, 1999 50% Reduction Goal for Releases & Transfers of TRI Chemicals

Category	Amount (pounds)
1993 Baseline	4,677,504
1999 50% Reduction Goal	2,338,752

Understanding
our data...

Table 1: 1993 DOE TRI Reporting by Toxic Chemical (in pounds)

TRI Chemical	Section 8.1 Quantity Released	Section 8.7 Off-Site Treatment	Total 8.1+8.7
Methanol	3,665,181	810	3,665,991
Sulfuric Acid	301,703	10,200	311,903
Dichlorotetrafluoroethane	170,000	0	170,000
Hydrochloric Acid	146,369	8,376	154,745
Nitric Acid	125,978	290	126,268
Ammonia	113,200	150	113,350
1,1,1-Trichloroethane	17,800	2,605	20,405
Chlorine	18,003	0	18,003
Xylene (mixed isomers)	16,788	0	16,788
Trichloroethylene	7,600	8,300	15,900
Toluene	12,552	0	12,552
Methyl Ethyl Ketone	9,800	0	9,800
Dichloromethane	6,319	2,970	9,289
Methyl Isobutyl Ketone	9,000	4	9,004
Lead	8,600	66	8,666
Hydrogen Fluoride	3,519	0	3,519
Ethylene Glycol	1,599	1,209	2,808
Acetone	1,700	230	1,930
Trichlorofluoromethane	1,800	0	1,800
Methyl Tert-Butyl Ether	1,760	0	1,760
Manganese Compounds	1,300	0	1,300
1,2,4-Trimethylbenzene	602	0	602
Benzene	401	0	401
Ethylbenzene	400	0	400
Others	320	0	320
TOTAL	4,642,294	35,210	4,677,504

One facility, the
Naval Petroleum
Reserve #1,
reported a
3,607,590
pound
underground
injection of
methanol.

Table 2: 1993 DOE TRI Reporting by Site (in pounds)

DOE Site	Section 8.1 Quantity Released	Section 8.7 Off-Site Treatment	Total 8.1+8.7
Naval Petroleum Reserve #1	3,782,920	0	3,782,920
Idaho National Engineering Lab	369,000	454	369,454
Portsmouth Gas. Diff. Plant	171,638	0	171,638
Energy Tech. Engr. Center	101,200	49	101,249
Savannah River Site	79,155	217	79,372
Oak Ridge Y-12 Plant	74,201	0	74,201
Pinellas Plant	22,324	23,500	45,824
Stanford Linear Accelerator	8,300	4,000	12,300
Oak Ridge National Lab	7,353	0	7,353
Oak Ridge K-25 Site	6,388	0	6,388
Brookhaven National Lab	4,600	1,335	5,935
Los Alamos National Lab	5,570	0	5,570
Argonne National Lab-East	445	4,000	4,445
Rocky Flats Plant	3,555	0	3,555
Others	5,645	1,655	7,300
TOTAL	4,642,294	35,210	4,677,504

TRI chemical
releases and
transfers
reported by
these 4 sites
represent 95%
of the DOE
1993 total.

EPCRA Reporting

Executive Order 12856 requires all federal facilities to comply with the EPCRA reporting requirements described below, regardless of Standard Industrial Classification code. EPCRA contains four major provisions: planning for chemical emergencies (Sections 301-303); emergency notification of chemical accidents and releases (Section 304); reporting of hazardous chemical inventories (Sections 311 and 312); and toxic chemical release reporting (Section 313).

These provisions require DOE sites to notify state emergency response commissions and local emergency planning committees of the presence of potentially hazardous substances on their sites and to report on the inventories and environmental releases of those substances. The intent of these requirements is to provide the public with information on hazardous chemicals in their communities, enhance public awareness of chemical hazards, and facilitate development of state and local emergency response plans.

DOE sites prepare comprehensive environmental reports or Annual Site Environmental Reports (ASERs) annually. One section of each site report discusses compliance with EPCRA reporting requirements. It is important to note that not all 71 sites potentially meeting the reporting requirements under EPCRA are required to prepare ASERs, and not all ASERs contained complete information on EPCRA reporting. For 1993, more than half of the 71 sites and all but two of the 23 sites reporting to the TRI completed ASERs. Thus, using data from the 1993 ASERs, the number of sites reported below cannot be totalled to reflect DOE-wide EPCRA reporting.

EPCRA 302-303. E.O. 12856 states that federal facilities were to submit emergency planning notification to their Local Emergency Planning Committee by March 3, 1994 (EPCRA 302). Additionally, facilities were

directed to submit information for the committees to prepare Comprehensive Emergency Response Plans by August 3, 1994 (EPCRA 303). Twelve DOE sites reported in their ASERs that they fulfilled the requirements of EPCRA Sections 302-303 in the 1993 reporting year; however, this does not reflect the sites which may have fulfilled these requirements in prior years.

EPCRA 304. In January 1994, federal facilities were to submit emergency notifications of releases of Extremely Hazardous Substances (EPCRA 304). The 1993 DOE ASERs identified 9 DOE sites that had spills and thus were required to file such reports. Fifteen DOE sites reported that they did not have spills requiring EPCRA Section 304 notification in 1993.

EPCRA 311-312. By August 3, 1994, E.O. 12856 directed facilities to submit Material Safety Data Sheets (MSDSs) as required by EPCRA Section 311. Also, by March 1, 1995, federal facilities were to submit an emergency and hazardous chemical inventory form (Tier I/II report) under EPCRA 312. As stated in the 1993 DOE ASERs, 26 DOE facilities reported completion of EPCRA Section 311-312 requirements.

EPCRA 313. By July 1, 1995, federal facilities meeting reporting requirements were to submit TRI Form R reports. As previously discussed, 23 DOE sites complied with EPCRA Section 313 one year ahead of the Executive Order requirement by reporting 1993 releases and transfers of toxic chemicals in July 1994.

Further, it is Departmental policy that DOE sites comply with state and local laws and regulations. As stated in the ASERs, DOE sites in Nevada, Idaho, Ohio and California noted compliance with state and local requirements (e.g., the Nevada Test Site must comply with the Nevada Chemical Catastrophe Prevention Act).

Each year, DOE sites prepare Annual Site Environmental Reports (ASERs) which discuss EPCRA reporting.

Sections 3-302(d), 5-502, 5-503, and 5-506 of Executive Order 12856 pertain to ensuring compliance with the provisions of the order. Specifically, these sections direct agencies to: 1) conduct assessments as necessary to ensure the development of site pollution prevention plans; 2) take all necessary actions to prevent pollution; 3) conduct internal reviews and audits to monitor compliance with the EPCRA and PPA reporting requirements; and 4) when the agency is notified of non-compliance, achieve compliance as promptly as practicable.

The Department has two occurrence reporting systems which track notices of non-compliance, notices of violation and similar documents which field sites receive from state and federal regulators. During the period from September 1993 to December 1994, there were no reported violations or reports of non-compliance with either EPCRA, the PPA or Executive Order 12856.

Additionally, due to the importance of pollution prevention in meeting departmental and national environmental performance goals, on July 28, 1993, the Office of Environmental Audit was authorized to conduct a Special Issue Review of pollution prevention management within DOE. A Special Issue Review is not an audit but rather an in-depth review of key environmental programs or activities which cut across organizational boundaries.

The intent of the Special Review conducted from September 1993 to March 1994 was to evaluate internally the overall status of the Department's pollution prevention program by evaluating management activities within selected DOE Program Offices, Operations Offices and facilities. The extent to which pollution prevention programs and practices have been institutionalized within DOE organizations

was determined, and barriers which impede the development and implementation of the pollution prevention program were identified. Additionally, a specific goal of this effort was to develop a pollution prevention assessment methodology.

The final report, issued in September 1994, identifies key challenges and proposes a series of recommendations to strengthen the overall DOE pollution prevention program.

In another monitoring effort, for reporting years 1993 and 1994, DOE field organizations were required to prepare DOE "Laboratory Activity Toxic Chemical Usage Reports." The purpose of this report was to enable DOE to document what quantities of identified toxic chemicals were being exempted from EPCRA Section 313 reporting through use of the laboratory activity exemption. A summary report is being prepared. Preliminary analysis of the laboratory activity reports received shows that of the 23 sites reporting under EPCRA Section 313 for reporting year 1993, six sites did not utilize the laboratory exemption but could have under EPCRA.

Furthermore, to ensure implementation of E.O. 12856 across the Department, the Secretary issued a memorandum on November 15, 1994 which assigned responsibilities to the Department's Cognizant Secretarial Officers. In an effort to notify top management about the requirements of E.O. 12856, DOE also prepared and presented a video, entitled *Meeting the Mandate: Management's Role in Complying with Executive Order 12856*. DOE senior management commitment at operations offices and sites is crucial in implementing E.O. 12856 and to help the public see that government is part of the solution, not part of the problem.

Pollution Prevention Plans

DOE waste-generating sites have prepared WMin/PP awareness plans, pursuant to internal directives.

Under Section 3-302(d) of Executive Order 12856, every "covered facility" must prepare a facility-wide pollution prevention plan by the close of 1995. This plan shall describe how the site intends to help the Department meet the complex-wide 50% reduction goal by December 1999.

Prior to the issuance of the Executive Order, DOE guidance issued by the Deputy Secretary of Energy established that all DOE waste-generating sites were to prepare a waste minimization/pollution prevention (WMin/PP) awareness plan in accordance with DOE Order 5400.1, *General Environmental Protection Program*. The WMin/PP plan integrates the waste minimization/pollution prevention activities

of all the waste generating organizations at that site. Since DOE facilities that report under EPCRA Section 313 are also waste generators, the DOE WMin/PP awareness plan should fulfill the requirement for a pollution prevention plan under Executive Order 12856.

To date, all of the 23 sites (identified in Figure 2 below) that report under EPCRA Section 313 have prepared pollution prevention plans. Additionally, since DOE Order 5400.1 directs all DOE waste-generating facilities to prepare WMin/PP awareness plans, numerous other DOE sites not reporting under EPCRA Section 313 also have pollution prevention plans in place. Site plans were last updated in 1994.

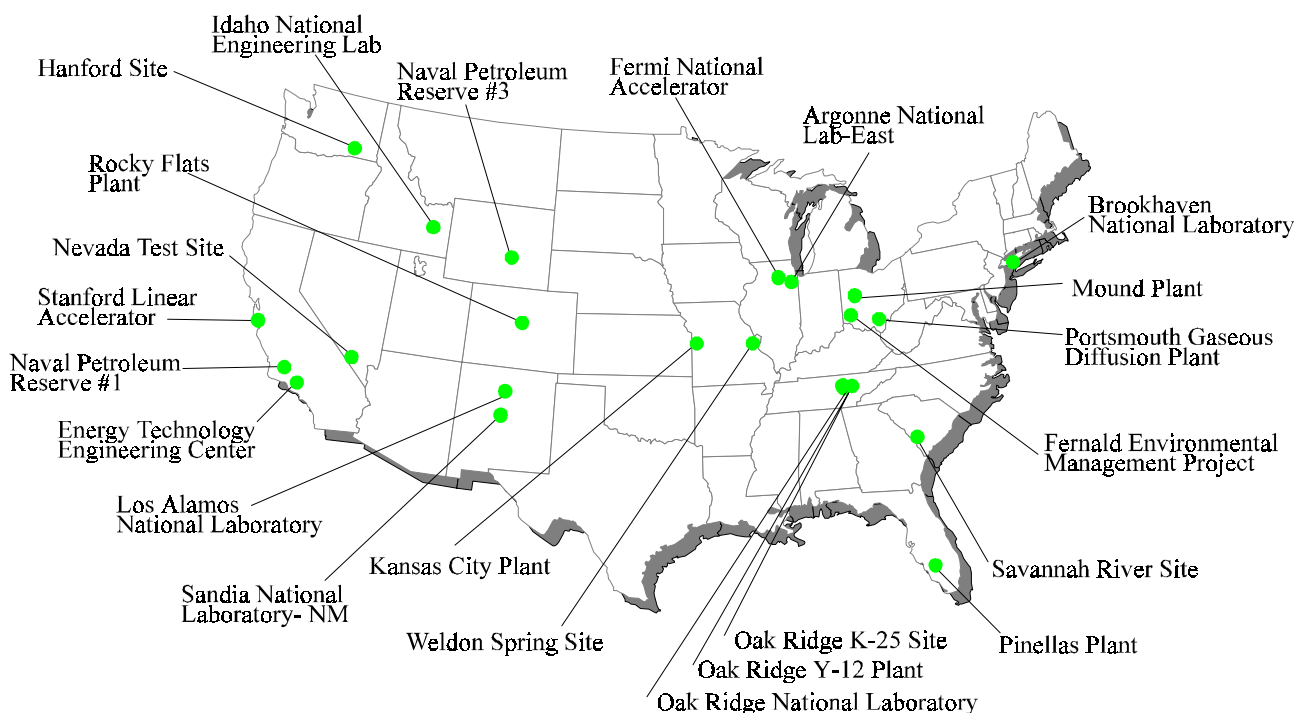


Figure 2. The 23 DOE sites reporting under EPCRA Section 313 (TRI) for the 1993 reporting year.

Section 3-303 of Executive Order 12856 directs each agency to set goals for eliminating or reducing the unnecessary acquisition of products containing extremely hazardous substances (EHSs) and toxic chemicals and for voluntarily reducing the manufacture, process, and use of EHSs and toxic chemicals. DOE also is expected to review specifications and standards documents to identify opportunities to eliminate or reduce the use of EHSs and toxic chemicals.

To date, DOE has not yet set specific numeric goals called for under Section 3-303 of E.O. 12856. However, these goals are inherent in each site's efforts to help DOE achieve the 50% reduction in the releases and transfers of toxic chemicals by December 31, 1999.

As a significant purchaser of materials and equipment, DOE is committed to promoting the purchase of less toxic, more durable, more energy-efficient materials, including products composed of recovered materials, for its own operations. The Department is committed to ensuring the use of environmentally sound practices in the procurement process, including updating specifications, contracts, and policies. This will ensure that DOE and its contractors act according to existing federal, state, and local regulations and DOE Orders and policies. In addition to the requirements of E.O. 12856, DOE has established programs to implement the requirements of E.O. 12843, *Procurement Requirements and Policies for Ozone-Depleting Substances*, and E.O. 12873, *Federal Acquisition, Recycling, and Waste Prevention*.

DOE is continuing its efforts to reduce and ultimately eliminate its use of ozone-depleting substances in refrigeration and air conditioning, firefighting, and solvent applications. For instance, DOE's Office of Defense Programs has made substantive progress in its transition from chlorofluorocarbon (CFC)-based refrigerations systems through its CFC inventory data collection

efforts, its assistance to DOE facilities in establishing site-specific refrigeration equipment replacement plans and funding requests, and its development of generic specifications for procurement of ozone-friendly chillers. DOE is in the process of developing a policy, requirements, and guidelines document on the procurement and use of ozone-depleting substances. In October 1994, DOE conducted a two-day workshop, "Protecting our Stratospheric Ozone Shield: Workshop on the DOE Facility Phaseout of Ozone-Depleting Substances" for DOE and contractor staff involved in managing the phaseout of these substances. Also during 1994, DOE Headquarters distributed the final report, *Recommended Approaches to Management of Refrigerants at DOE Facilities*.

To implement E.O. 12873, DOE recently issued a guidance document entitled *U.S. Department of Energy Affirmative Procurement Program for Products Containing Recovered Materials*. The Department's Deputy Assistant Secretary for Environmental Management was appointed the Agency's Environmental Executive responsible for the implementation of this order. The Department's goal is that at least 50% of FY 1996 purchases of EPA-designated items will contain recovered materials. The EPA-designated items purchased by the Department include: cement and concrete containing fly ash, paper and paper products, re-refined lubricating oil and retread tires, and building insulation.

The percentage of EPA-designated items purchased by DOE has steadily increased from 29% in FY 1992, to 32% in FY 1993, to 34% in FY 1994. In FY 1994, DOE purchased \$29.6 million worth of EPA-designated items, of which nearly \$10 million contained recovered materials. DOE has made tremendous progress in identifying and overcoming barriers to purchasing recycled products. These accomplishments will enable DOE to increase purchases of recycled products in future years.

Pollution Prevention Technology

Executive Order 12856 also encourages Agencies to develop and test innovative pollution prevention technologies and to develop partnerships with industry to assess and deploy such technologies. Work with external partners is beneficial to DOE's internal pollution prevention programs as technologies developed with industry and other federal agencies are applied to DOE operations and facilities. External partnerships also promote information exchange within and outside of DOE.

DOE has a long history of successful partnerships with the private sector and academia, particularly through its applied research programs. These partnerships take many forms; for example, they can be relatively simple technical assistance arrangements with small businesses, or they can be agreements involving collaborative technology development, with the private-sector partner playing a central role in defining the research agenda. The transfer of DOE-developed pollution prevention technologies and environmental measurement capabilities helps U.S. businesses gain a competitive edge in world markets. Selected examples of DOE pollution prevention technology programs that are being conducted with other agencies and the private sector follow. These examples do not represent the broad scope of pollution prevention technology being developed at DOE internally.

The DOE Office of Energy Efficiency and Renewable Energy (EE) is providing pollution prevention assistance to United States industry through the National Industrial Competitiveness through Energy Efficiency, Environment and Economics (NICE³) Program. The NICE³ mission is to encourage industry demonstration of new and innovative technologies to minimize waste generation, promote energy efficiency, and promote cost-competitiveness. EE has

worked together with EPA and the states to increase the deployment of near-term, traditional pollution prevention technologies. Activities are focused primarily on energy and pollution prevention intensive technologies such as chemical and petroleum refining, metals production, and the pulp and paper industry. Examples of NICE³-funded projects include: recovering and reusing methanol through distillation; utilizing ultrasonic dishwashing to reduce wastewater and NO_x emissions; producing ultra-violet curable coatings for aluminum cans to reduce energy consumption and solvent emissions; and applying a new process for manufacturing color television picture tubes to promote higher resolution while improving energy efficiency and promoting waste reduction.

In order to go beyond regulatory compliance to prevent pollution, funding is being provided to the Department's national laboratories to develop, demonstrate, test, evaluate and implement new technologies that are environmentally benign. A key to accomplishing this involves environmentally conscious manufacturing (ECM), which includes those processes that result in the reduction of the harmful environmental impacts of manufacturing. ECM includes product reformulation, material substitution, process modification, equipment redesign, and recycling. Current projects include: ECM design, including "How Clean is Clean?"; soldering; electroplating and surface finishing; and process waste assessments and automated tracking of chemicals.

Further, DOE has initiated a Cooperative Research and Development Agreement (CRADA) between Sandia National Laboratory and Los Alamos National Laboratory in New Mexico and Motorola in Arizona to develop and test a new soldering process. The new soldering technique is not



only cheaper, but it does not use ozone-destroying chemicals used under current specifications. The "no-clean" technique decreases solvent-based cleaning which currently accounts for at least one-fifth of world-wide consumption of CFCs.

As a result of this technology transfer initiative, it is estimated that Motorola will save about \$500,000 a year at its Scottsdale military products plant by switching to the new process. DOE estimates that about a third of the soldering machines in the United States are good candidates for the new process which could result in a nation-wide savings of \$240 million per year.

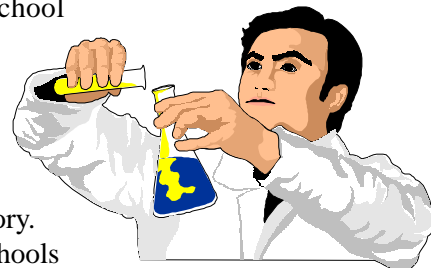
A recent effort funded jointly between DOE and the National Aeronautics and Space Administration (NASA) at the Lawrence Livermore National Laboratory suggests that soil bacteria can help break down chlorinated solvents. Using this technology, groundwater aquifers at many industrial and government sites contaminated with suspected carcinogens could be bioremediated at about half the cost of traditional methods. Field studies indicate that harmless soil bacteria can biodegrade 40% of the solvents in groundwater containing chloroethane, dichloroethane, and trichloroethene. The bacteria consume methane for energy and as a source of carbon for growth. The bacteria's cellular metabolism then destroys the toxic compounds through oxidation.

In another effort, DOE's National Institute for Petroleum and Energy Research (NIPER) in Bartlesville, Oklahoma, is examining using alternative fuels, namely biodiesel fuel and compressed natural gas, for vehicles to lower harmful combustion emissions. Results from tests comparing biodiesel fuel to conventional diesel fuels have shown that both fuels produce about the same amount of power; however, biodiesel fuels resulted in

much lower emissions of hydrocarbons, carbon monoxide, smoke, and particulates. Studies are continuing to reduce emissions of nitrogen oxides.

Finally, in March of 1995, through the Airlie House Technology Transfer Program, DOE's Chicago Operations Office held the first in a series of high school chemistry teacher workshops on waste minimization/pollution prevention through microchemistry at the Argonne National Laboratory.

The program helps high schools manage their laboratory chemical waste instead of dropping chemistry laboratory programs. The goals of the workshops are to introduce future scientists to pollution prevention and microchemistry, instill good pollution prevention habits in students, and offer the most modern approaches to chemistry. Due to the success of the first workshop, future workshops are planned for both high school and college teachers at DOE's Argonne and Brookhaven National Laboratories.



As another part of the Airlie House Program, the DOE Chicago Operations Office is providing the State of Ohio Department of Natural Resources with a \$50,000 grant in support of a recycling initiative known as "Recycle Ohio." This program complements the DOE goals related to acquisition of materials made from recycled materials. In cooperation with the DOE Batelle Site Office, Ohio is establishing a "Recycled Plastics Center" and plans to produce pallets made of recycled plastic for use in the DOE system. This program also will provide an additional outlet for recycling technologies from DOE's National Laboratories.

Pollution Prevention Funding

The Executive Order directs federal agencies to place a high priority on obtaining funding and resources for implementing the order. Starting with fiscal year 1994, DOE has changed the way it develops the Department's budget. In the past, site pollution prevention funding came from overhead accounts and could not be tracked directly as funding for pollution prevention.

DOE sites are required now to record budgets on activity data sheets which are submitted to Headquarters annually. Headquarters then compiles these activity data sheets by program to develop the Department's five-year budget, which is published in the Environment, Safety and Health (ES&H) Management Plan. Therefore, the ES&H Management Plan now reflects both site and Headquarters budgets for pollution prevention.

Table 4 below presents the monies budgeted by the Department for fiscal years 1993 to 1995 and planned for FY 1996 for pollution prevention. The table also shows the Department's commitment to pollution

prevention through the notable increase in total pollution prevention funding from FY93 and FY94 to FY95.

The Department continues to refine mechanisms to direct pollution prevention funding where it is most needed. The pollution prevention program is maturing from program development to implementation of source reduction and recycling projects. Implementation funds are derived from site budgets and the Return-on-Investment (ROI) program.

The ROI program, which was initiated in 1994, involves site proposals for implementation funds for activities or projects that will reduce operational costs in the short-term (less than 3 years). The ROI program is based upon savings in waste management costs compared to the dollars spent on pollution prevention. In 1994, 17 projects from six DOE Operations Offices were selected for funding based on technical merit and projected high return. The Department plans to continue the ROI program in 1995 with review and selection of site proposals.

■■■■■■■■■■
DOE's complex-
wide funding for
pollution
prevention has
notably
increased from
FY93 and FY 94
to FY95.
■■■■■■■■■■

Table 4: DOE-wide Pollution Prevention Resources FY93-FY96 (in millions of dollars)

DOE Program	FY 1993	FY 1994	FY 1995	FY 1996 ^f
Environmental Management	24.9 ^a	26.7 ^d	33.7 ^d	29.5 ^d
Defense Programs	1.6 ^b	--	11.3 ^c	12.6 ^c
Energy Research	0.1 ^c	--	0.9 ^c	1.5 ^c
Total DOE-wide	\$26.6	\$26.7	\$45.9	\$43.6

^aTotal provided by the Office of Environmental Management (June 1995).

^bTotal provided by the Office of Defense Programs (June 1995).

^cTotal provided by the Office of Energy Research (July 1995).

^dFrom Environmental Management Activity Data Sheets.

^eFrom Environment, Safety & Health Management Plan.

^fPlanned FY96 pollution prevention budget.

Other E.O. 12856 Responsibilities

Additionally, Executive Order 12856 directs the Department to: 1) submit a preliminary list of sites that could meet the requirements for reporting under EPCRA and the PPA; 2) provide public access to pollution prevention strategies, plans, and reports; and 3) participate on the Interagency Task Force.

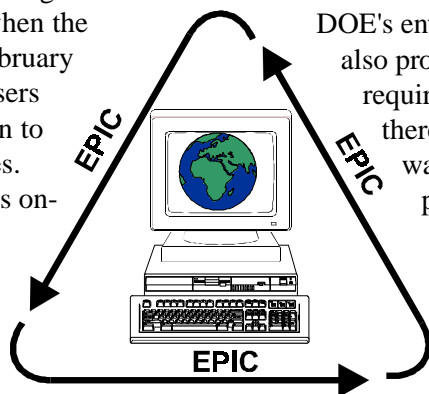
As directed by Section 5-501 of the Executive Order, DOE first submitted a preliminary list of facilities that potentially could meet reporting requirements under EPCRA and the PPA in January 1994. To validate the preliminary list, DOE Headquarters performed a field survey in early 1994 and received responses from over one hundred sites. In the official list submitted to EPA in April 1994, DOE identified 71 sites as potentially meeting the reporting requirements under any or all of EPCRA Sections 302-303, 311-312, and 313. This list did not include the DOE sites which potentially may report solely under EPCRA Section 304.

To provide the public with access to pollution prevention strategies, plans, and reports, the Department set up an on-line pollution prevention information clearinghouse called EPIC in February 1995. EPIC is available to the public through the World Wide Web on the Internet (<http://146.138.5.107/epic.htm>). Presently, users can access the DOE Pollution Prevention Strategy, as well as numerous other pollution prevention guidance documents and reports. During a six month period, beginning when the system was available in February 1995, "public" users and users within DOE have logged on to the system over 4,000 times. Users also can access EPA's on-line pollution prevention database EnviroSense through EPIC.

Further, DOE sites can provide the public with site-level documents through their Site Advisory Boards, Public Reading Rooms, and/or telephone requests. The Department is also in the process of publishing a notice in the *Federal Register* to announce the availability of the DOE Pollution Prevention Strategy.

The Department also has been participating actively in the activities of the Interagency Task Force, created by Executive Order 12856. The task force has been expanded to include senior-level officials in all interested federal agencies. The DOE representative appointed by the Secretary of Energy is the Deputy Assistant Secretary for Environmental Management. This task force has created an Interagency Working Group, made up of members of the previously mentioned federal agencies, including DOE, to resolve issues regarding the implementation of Executive Order 12856.

Finally, in May 1995, the Office of Environmental Restoration issued a document entitled, *Pollution Prevention and Waste Minimization Guidance for Environmental Restoration Activities* to assist program and project personnel working at Headquarters and field locations. Although pollution prevention technologies are typically associated with production activities, DOE's primary mission has changed from weapons production to environmental restoration. And, since DOE's environmental restoration efforts also produce large quantities of waste requiring treatment and disposal, there is a need to incorporate waste minimization and pollution prevention into environmental restoration activities at DOE sites.



Other P2 Initiatives: DOE 33/50 Program

In September 1992, the Secretary of Energy directed the Department to participate in the 33/50 Program, a voluntary pollution prevention initiative in cooperation with the EPA, and committed DOE to the following actions under a two-part toxic chemical reduction program.

Part I: By the end of calendar year 1995 (reporting year 1993), strive to achieve a 50% reduction of the seventeen priority chemicals from the facilities that are currently submitting TRI Form R reports. The baseline for calculating reductions was the 1988 reporting year, and the 50% reduction goals applied to the aggregate of all seventeen priority chemicals and all DOE facilities that reported for reporting years 1988-1992. Table 5 identifies the sites which are subject to Part I of the DOE 33/50 program.

The DOE 33/50 program encourages sites to reduce voluntarily, through source reduction methods, the on-site releases of

Table 5: DOE sites reporting to the TRI during the 1988-1992 reporting years, therefore potentially subject to the 50% reduction goal defined under Part I of the DOE 33/50 program.

Albuquerque Microelectronics
Brookhaven National Laboratory*
FERMI National Accelerator
Fernald Environmental Management Project*
Hanford Site*
Idaho National Engineering Laboratory*
Kansas City Plant*
Los Alamos National Laboratory
Mound Plant*
Oak Ridge K-25 Site*
Oak Ridge National Laboratory*
Oak Ridge Y-12 Plant*
Paducah Gaseous Diffusion Plant*
Pantex Plant*
Pinellas Plant*
Portsmouth Gaseous Diffusion Plant*
Rocky Flats Plant*
Sandia National Laboratory-NM
Savannah River Site*
West Valley Demonstration Project
* denotes sites reporting 33/50 program priority chemicals during the 1988-1993 reporting years.

priority TRI chemicals to the environment and off-site transfers of priority TRI chemicals. As shown in Table 6 below, during the period from 1988 to 1993, DOE

Table 6: 1993 DOE 33/50 Program-Part I TRI Reporting by Chemical (in pounds)

Priority Chemical	1988 Releases & Transfers	1993 Releases & Transfers	% Change 1988-1993
Benzene	---	---	0%
Cadmium and Compounds	---	---	0%
Carbon Tetrachloride	132,947	---	-100%
Chloroform	---	---	0%
Chromium and Compounds	33,413	---	-100%
Cyanides	---	---	0%
Dichloromethane	150,481	14,155	-91%
Lead and Compounds	31,183	8,651	-72%
Mercury and Compounds	---	---	0%
Methyl Ethyl Ketone	9,450	9,776	+3%
Methyl Isobutyl Ketone	1,250	8,954	+616%
Nickel and Compounds	---	---	0%
Tetrachloroethylene	71,257	---	-100%
Toluene	18,853	2,405	-87%
1,1,1-Trichloroethane	571,871	12,360	-98%
Trichloroethylene	351,873	9,305	-97%
Xylene (mixed isomers)	1,782	7,480	+320%
TOTAL	1,374,360	73,086	-95%

DOE 33/50
program Part I
baseline.

sites far exceeded the 50% reduction goal, reporting an overall 95% reduction in the total on-site releases to the environment and off-site transfers of priority chemicals.

While a significant portion of these reductions were attributed to ceased production, several DOE sites made significant source reduction contributions. Specifically, in 1988, the Kansas City Plant and Oak Ridge Y-12 Plant reported 39% and 19%, respectively, of the seventeen priority chemicals reported by DOE sites. Without reductions at these facilities, particularly at the Kansas City Plant, the Department could not have met the 50% reduction goal under Part I of the DOE 33/50 program.

Since 1988, the Kansas City Plant has decreased its total reportable usage of solvents by 90%. Reductions in 1,1,1-trichloroethane and trichloroethylene at the Kansas City Plant were achieved by changing processes to replace solvents with non-hazardous, naturally occurring organic solvents. Additionally, between 1988 and 1992, the Oak Ridge Y-12 Plant achieved a 100% reduction in reported quantities of 1,1,1-trichloroethane and a 60% reduction in quantities of trichloroethylene. These solvent reductions were achieved through substitution with non-chlorinated, non-hazardous solvents developed and manufactured at the Oak Ridge Y-12 Plant.

Part II: Beginning with reporting year 1993, initiate voluntary TRI Form R reporting by all facilities not already reporting but meeting the reporting thresholds under Section 313 of EPCRA. By the end of calendar year 1997 (reporting year 1995), strive to achieve a 33% reduction in releases of the seventeen priority chemicals from these additional facilities using the 1993 reporting year as the baseline for calculating reductions. Table 7 identifies the sites which are subject to Part II of the DOE 33/50 program.

Reporting year 1993 represents the baseline year for Part II of the DOE 33/50 program. Table 8 identifies the priority chemicals reported by these sites. By the end of reporting year 1995, it is the Department's goal to reduce the baseline total releases and transfers of 34.4 thousand pounds by 33% (to 23.1 thousand pounds).

Table 7: DOE Sites initiating TRI reporting in the 1993 reporting year, therefore potentially subject to the 33% reduction goal defined under Part II of the DOE 33/50 program.

Argonne National Laboratory-East*
Energy Technology Engineering Center
Naval Petroleum Reserve #1*
Naval Petroleum Reserve #3*
Nevada Test Site
Stanford Linear Accelerator Center*
Weldon Spring Remedial Action Project

* denotes sites reporting 33/50 program priority chemicals in the 1993 reporting year.

Table 8: 1993 DOE 33/50 Program-Part II TRI Reporting by Chemical (in pounds)

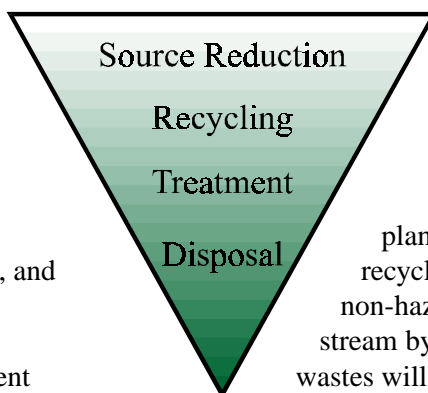
DOE Site	Priority Chemical	1993 Releases & Transfers
Argonne National Lab-East	Benzene	500
Naval Petroleum Reserve #1	Benzene	378
Stanford Linear Accelerator	1,1,1-Trichloroethane	12,700
Argonne National Lab-East	Toluene	1,000
Naval Petroleum Reserve #1	Toluene	10,008
Argonne National Lab-East	Xylene (mixed isomers)	500
Naval Petroleum Reserve #3	Xylene (mixed isomers)	255
Naval Petroleum Reserve #1	Xylene (mixed isomers)	9,116
TOTAL		34,457

*DOE 33/50
program Part II
baseline.*

Other P2 Initiatives: Waste Reduction

Compared to other sources of DOE waste, the generation of toxic chemical releases and transfers at DOE facilities represents a small portion of the Department's total annual waste generation. Therefore, many of the Department's pollution prevention efforts, including the allocation of funds for pollution prevention, have been focused toward reducing more significant forms of waste, such as hazardous wastes, radioactive wastes, and radioactive mixed wastes.

In accordance with recent Executive Orders and internal departmental guidance, the Department has set goals for reducing the generation of these other wastes. Similar to the 50% reduction goal for releases and transfers of toxic chemicals specified under Executive Order 12856, the Department is committed to achieving these reductions through source reduction to the maximum extent practicable. These reduction goals are presented in Table 9 below.



As specified by Executive Order 12873, the Department has set solid waste prevention and recycling goals. From a 1993 baseline, DOE has committed to reducing the generation of solid waste 5% by the end of 1995. DOE intends to achieve this goal through source reduction of hazardous and sanitary waste.

Additionally, the Department plans to divert annually for recycling 25%, by weight, of the non-hazardous, non-radioactive waste stream by the end of 1995. Diverted wastes will be recycled directly by the Department or transferred for recycling. These recycling goals apply to all DOE wastes, including routine and non-routine waste generated from weapons dismantlement and environmental restoration.

Finally, the Department is in the process of establishing goals to reduce the generation of hazardous and radioactive wastes.

Table 9: Summary of Source Reduction and Recycling Goals, Compared to 1993 Baseline of Waste Generation

Goal	1993 Baseline	Dec. 31, 1995	Dec. 31, 1999	Type of Waste Generation Activity
Reduce the total releases and off-site transfers for treatment and disposal of toxic chemicals	4.68 million pounds	n/a	50%	Routine
Reduce generation of solid waste	131,200 metric tons	5%	TBD	Routine
Divert solid, non-hazardous waste for recycling	NA ^a	25%	TBD	Routine and Non-routine

^a Recycling goals are baselined annually.
TBD - To be determined

***Department of Energy
Pollution Prevention
Strategy***

Appendix A

UNITED STATES DEPARTMENT OF ENERGY POLLUTION PREVENTION STRATEGY

POLICY STATEMENT:

"The Department of Energy (DOE) embraces pollution prevention as its strategy to reduce the generation of all waste streams and thus minimize the impact of departmental operations on the environment, as well as improving safety of operations and energy efficiencies. I expect the Department to continue the leadership shown by our voluntary compliance with the Emergency Planning and Community Right-to-Know Act (EPCRA) and our participation in the Environmental Protection Agency's 33/50 program which focuses on near-term pollution prevention efforts of 17 priority toxic chemicals."

"Recognizing that pollution prevention is the Department's preferred approach to meeting its environmental responsibilities, I am directing that Cognizant Secretarial Offices, working in conjunction with the Pollution Prevention Executive Board, identify, plan, and allocate funds for field implementation of waste minimization and pollution prevention activities during the departmental budget review process. This information will be used to provide an identified budget each year dedicated to pollution prevention activities." -- Secretary Hazel R. O'Leary, 12/28/93

RESPONSIBLE INDIVIDUAL:

DOE is committed to ensuring the success of its pollution prevention goals. Because of this commitment, the Department has designated Deputy Secretary of Energy William H. White as the senior manager responsible for coordination of the Department's efforts in pollution prevention. Mr. White may designate another individual to act on his behalf should the need arise.

BACKGROUND:

The Department of Energy has had a longstanding commitment to implementing the principles contained in Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements." DOE facilities have been active in complying with EPCRA since its passage in 1986. The Department has provided guidance and training materials on the general requirements of EPCRA, and specific guidance and training on Toxics Release Inventory (TRI) reporting. In fact, the Department has led the Federal sector in TRI reporting by voluntarily committing to report TRI releases prior to the issuance of the Executive Order, and has worked closely with EPA during 1992 and 1993 on resolving issues of Federal facility TRI reporting.

The Department has also been a leader in the development and implementation of pollution prevention programs and activities, including voluntary participation in EPA's 33/50 program. In 1988, 12 DOE facilities filed Form R reports with EPA as sites which used or stored chemicals to be reported under TRI. Since then, DOE facilities have met, ahead of schedule, the Department's goal of a 50 percent reduction in TRI releases and transfers of the seventeen priority toxic chemicals covered by the EPA 33/50 program. In addition, facility-specific pollution prevention plans are required under DOE Order 5400.1, *General Environmental Protection Program*, and the Department has issued guidance to its facilities on the preparation of those plans. DOE has actively involved nearly all Departmental organizations in pollution prevention activities at the staff level through the Waste Reduction Steering Committee, and at the senior management level through the Pollution Prevention Executive Board, chaired by the Deputy Secretary of Energy.

The combined effort of these groups produced the Department's 1994 Waste Minimization/Pollution Prevention Crosscut Plan, as well as a program to identify and implement pollution prevention projects which can produce successful results in the near-term. In addition, the Department has established a pollution prevention funding mechanism through the Department-wide Environment, Safety and Health Management Plan. This will ensure that pollution prevention programs are funded that reduce toxic emissions and waste generation in a cost effective manner.

Every effort has been, and will continue to be, made to involve the public and other stakeholders in monitoring the Department's progress in meeting the requirements of Executive Order 12856.

The attached bibliography details past Departmental efforts to implement pollution prevention through Secretarial memoranda, guidance documents, and planning documents. The objectives and goals which follow build upon the previous efforts and upon the Department's other pollution prevention successes to date.

OBJECTIVE 1. EFFECTIVELY INSTITUTIONALIZE THE POLLUTION PREVENTION ETHIC THROUGH TRAINING AND AWARENESS IN ALL MISSION AREAS

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 1.1 Develop an environmentally aware DOE community through education and training in pollution prevention so that all personnel understand the DOE commitment to utilize pollution prevention through source reduction, where practicable, as the primary means of achieving and maintaining compliance with all applicable Federal, State, and local environmental regulations.

- Equip our work force with the pollution prevention skills to accomplish DOE's missions while protecting the environment.
- Institutionalize and continually improve appropriate pollution prevention training for our personnel.
- Integrate pollution prevention measures into all operations.

Sub-objective 1.2 Promote pollution prevention through multimedia outreach/awareness programs and partnerships.

- Strengthen working relationships with regulators at all levels.
- Foster partnerships with stakeholders and industry by:
 - participating in local community emergency planning;
 - enhancing the coordination and effectiveness of local emergency response capabilities;
 - providing communities with information on toxic chemical use and release by reporting under TRI;
 - promoting the elimination of the use of hazardous substances, a reduction in toxic emissions, and a reduction in the generation of hazardous waste and DOE facilities; and
 - encouraging affirmative procurement of non hazardous chemicals and materials and products with recycled content, and the reuse and recycling of materials when possible.
- Demonstrate innovative leadership in and commitment to pollution prevention.
- Disseminate information on pollution prevention technologies throughout the DOE complex.
- Work with other Federal agencies on information exchange.

Sub-objective 1.3 Encourage and recognize outstanding pollution prevention efforts through existing and new awards/incentive programs.

Appendix A (continued)

OBJECTIVE 2: REDUCE RELEASES AND OFF-SITE TRANSFERS OF TOXIC CHEMICALS TO THE ENVIRONMENT

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 2.1 Minimize releases of toxic chemicals to the environment and off-site transfers of such toxic chemicals. To the maximum extent possible, such reductions shall be achieved through source reduction.

GOAL: By December 31, 1999, achieve a Department-wide 50 percent reduction of total releases of toxic chemicals to the environment and off-site transfers of such toxic chemicals from the baseline year (DOE will determine the baseline year after further study).

Sub-objective 2.2 Establish site-specific goals to reduce the generation and use of radioactive and other hazardous materials to the extent practicable.

Sub-objective 2.3 Develop, maintain, and implement pollution prevention plans at each major facility. These plans may include baselines, pollution prevention opportunity assessments, and investment strategies.

Sub-objective 2.4 Implement cost-effective pollution prevention at all DOE facilities.

Sub-objective 2.5 Submit annual reports to the EPA Administrator regarding progress made toward achievement of the above goal, as well as progress made in complying with all other aspects of Executive Order 12856.

OBJECTIVE 3: INCORPORATE POLLUTION PREVENTION POLICY INTO THE ACQUISITION PROCESS

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 3.1 Integrate environmental considerations into acquisition strategies, plans, and the source selection process. Employ life cycle analyses and total cost accounting principles in procurements, as appropriate.

GOALS:

1. Establish a Department-wide plan, with goals, to eliminate or reduce unnecessary acquisitions of hazardous substances or toxic chemicals.
2. Establish a Department-wide plan, with goals, to reduce DOE manufacture, process, and use of extremely hazardous substances and toxic chemicals.

Sub-objective 3.2 Integrate pollution prevention considerations when developing mission needs and when developing and revising acquisition documentation.

GOAL: By August 3, 1995, review DOE standards and specifications to identify opportunities to eliminate or reduce unnecessary acquisitions of hazardous or toxic substances, and complete all necessary revisions by December 31, 1998.

OBJECTIVE 4: ACHIEVE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW REPORTING

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 4.1 Develop and maintain a comprehensive inventory of toxic chemicals, extremely hazardous substances, and hazardous chemicals at each DOE facility.

Sub-objective 4.2 Ensure that each facility fulfills all EPCRA reporting responsibilities, including:

- Emergency planning notification.
- All other information needed for local emergency planning.
- Chemical inventory information to local emergency planning committees.
- Emergency notification to local emergency response teams.
- TRI reporting.

OBJECTIVE 5: ADDRESS OTHER ENVIRONMENTAL QUALITY ISSUES AND POLLUTION PREVENTION FOCUS AREAS

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 5.1 Address the requirements of Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” signed by the President on February 11, 1994. This Executive Order focuses on achieving environmental justice by promoting non-discrimination in DOE’s programs that affect human health and the environment.

Sub-objective 5.2 Promote water conservation, energy efficiency, and use of renewable energy technologies, as required by Executive Order 12902, “Energy Efficiency and Water Conservation at Federal Facilities.”

- Minimize life cycle costs by utilizing energy efficiency, water conservation, and renewable energy resources in the design and construction of new facilities, as well as in the modification of existing facilities.

GOALS:

1. By December 31, 2004, achieve a 30 percent Department-wide reduction in energy consumption from the 1985 baseline.
2. By December 31, 2004, increase Department-wide energy efficiency by at least 20 percent from the 1990 baseline.

Sub-objective 5.3 Optimize the use of environmentally preferable materials in the planning, construction, and maintenance of facilities. Establish and promote efficient material/energy-use practices through conservation, reutilization, materials substitution, recycling, affirmative procurement, and the creation of markets for recycled materials, as required by Executive Order 12873, “Federal Acquisition, Recycling, and Waste Prevention.”

Sub-objective 5.4 Incorporate pollution prevention principles, techniques, and mechanisms into all planning and decision making processes. Evaluate and report those efforts in documentation required by the National Environmental Policy Act.

OBJECTIVE 6: DEVELOP, TRANSITION, AND APPLY INNOVATIVE POLLUTION PREVENTION TECHNOLOGIES

DOE OFFICES OF RESPONSIBILITY: All Cognizant Secretarial Offices

Sub-objective 6.1 Develop and support a DOE Strategic Plan to identify and prioritize research, development, demonstration, testing, and evaluation (RDDT&E) needs.

- Focus pollution prevention RDDT&E on developing and implementing critical technologies needed for source reduction.
- Encourage user participation in formulating requirements.

Sub-objective 6.2 Identify and fund high priority RDDT&E programs.

- Identify, develop, and implement a RDDT&E plan.

Sub-objective 6.3 Coordinate DOE’s pollution prevention RDDT&E programs with those of other Federal agencies, academia, and private industry.

Appendix A (continued)

- Identify material and process substitutes in DOE technologies that have government-wide as well as commercial application for expedited implementation.
- Foster cooperative interagency, Federal-State, and government-industry partnerships to solve pollution prevention issues.
- Actively demonstrate and implement “off-the-shelf” technologies that ensure the mission capability of DOE facilities.
- Integrate pollution prevention measures into all appropriate operations.

Sub-objective 6.4 Encourage the development of strong domestic and foreign markets for DOE-developed, innovative pollution prevention technologies.

- Develop, demonstrate, test, evaluate, and implement innovative pollution prevention technologies at DOE facilities.
- Forge partnerships with environmental technology firms abroad to export DOE-developed pollution prevention technologies.

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